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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,010	01/21/2002	Barry Gelernt	06161USA	5486

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AIR PRODUCTS AND CHEMICALS, INC.
PATENT DEPARTMENT
7201 HAMILTON BOULEVARD
ALLENTOWN, PA 181951501

EXAMINER	
FASTOVSKY, LEONID M	

ART UNIT	PAPER NUMBER
3742	

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/054,010	GELERNT ET AL.	
	Examiner	Art Unit	
	Leonid M Fastovsky	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 4-6, 9,12-14, 16 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chayka (5,952,046) in view of McMenamin (4,436,674). Chayka teaches a vapor flow controller 10 (Fig. 3) comprising a source container 112 containing a liquid phase source material 114, a pump 118 to transport the liquid directly from the reservoir 112 to a vaporizer module 136 with a chamber, a liquid flow controller 12a, and a carrier gas container (not shown) supplying a carrier gas to the vaporizer module 136 via line 138.

However, Chayka does not teach a gas mass flow controller, an electronic module, a gas flow rate, a quartz vaporizer and a thermal sensor.

McMenamin teaches a vapor flow control system comprising a gas mass flow controller 26 and an electronic gas flow controller 40 which is equivalent to the electronic module (col. 4, lines 15-31), the controller calculates the vapor-gas flow and determines the level of the chemical supply (col. 6, lines 7-20). It would have been obvious to one having ordinary skill in the art to modify Chayka's invention to include an electronic

module-gas mass flow controller as taught by McMenamin in order to make Chayka's the system more efficient when the electronic module-mass flow controller 40 controls the flow of the chemical agent at an appropriate rate.

As for claim 4, McMenamin discloses a mass flow controller 40 with the flow rate from 0 to 500 cubic centimeters per minute. It would have been obvious to one having ordinary skill in the art to modify Chayka's invention to include the flow rate from 0 to 500 cubic centimeters per minute as a standard industrial rate as taught by McMenamin.

As for claim 5, Chayka discloses using a heated vaporizer to better stabilize and control a vapor formation (col. 11, lines 20-25).

As for claim 5, 12-13, McMenamin discloses also a source of heat, a temperature controller 48 and a temperature sensor 42. It would have been obvious to one having ordinary skill in the art to modify Chayka's invention to include a temperature sensor as taught by McMenamin in order to improve efficiency of the vaporizer by maintaining the bubbler at desired temperature (col. 5, lines 55-61).

As for claim 6, McMenamin discloses a quartz vaporization chamber in order not to react with the liquid or carrier gas (col. 5, lines 25-30).

As for claim 14, Chayka discloses a vaporized gas outlet 140 provides flow of the vapor to a reactor 142.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chayka in view of McMenamin and further in view of Schmitt (6,098,964).

Chayka in view of McMenamin teaches substantially the claimed invention but does not teach a particulate filter. Schmitt discloses a particular filter 22. It would have been obvious to one having ordinary skill in the art to include a particular filter in Chayka's in view of McMenamin invention to filter the liquid as taught by Schmitt and the cleaner liquid makes a vaporizer's performance more reliable.

4. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chayka in view of McMenamin and further in view of and Bran (5,556,479).

Chayka in view of McMenamin discloses substantially the claimed invention, but does not disclose a radiant heat and quartz lamps. Bran discloses an apparatus for making wafers that utilizes a radiant energy source produced by quartz lamps with mirrors (col. 5, lines 61-64). It would have been obvious to one having ordinary skill in the art to modify Chayka's vaporizing chamber to include quartz lamps with mirrors as taught by Bran in order to provide more efficient heating.

5. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chayka in view of McMenamin and further in view of Jacob et al (4,539,221).

Chayka in view of McMenamin teaches substantially the claimed invention, but is silent regarding a temperature range and sources of heating. Jacob teaches temperatures in a range from 900-1150 degree C and induction and resistive sources of heat (col. 2, lines 50-54). It would have been obvious to one having ordinary skill in the art to modify the invention of Chayka in view of McMenamin to include induction and resistive heating sources and the temperature in order to maintain proper vapor phase as taught by Jacob (col. 2, lines 60-67).

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chayka in view of McMenamin and further in view of Woodgate (4,321,031).

Chayka in view of McMenamin discloses substantially the claimed invention, but is silent regarding a latent heat of vaporization. Woodgate discloses liquid with a latent heat of vaporization (Abstract). It would have been obvious to one having ordinary skill in the art to modify the invention of Chayka and McMenamin to include an apparatus where the vapors condensate and transfer the latent heat as taught by Woodgate (Abstract, lines 5-8).

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chayka in view of McMenamin and further in view of Hinkle (5,966,499).

Chayka in view of McMenamin teaches substantially the claimed invention, but does not teach a flow range of a liquid chemical. Hinkle discloses a flow range of 0.8 grams per minute (col. 10, lines 11-15). It would have been obvious to one having ordinary skill in the art modify Chayka's invention in view of McMenamin to include a flow range as taught by Hinkle in order to maintain a desired process of vaporization.

Response to Arguments

8. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid M Fastovsky whose telephone number is 571-272-4778. The examiner can normally be reached on M-Th. 8.00 am -6.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leonid M Fastovsky
Examiner
Art Unit 3742

lmf

12/7/04

ROBIN O. EVANS
PRIMARY EXAMINER

12/8/04